

inhibits CYP2A6 activity, or (ii) selectively inhibits transcription and/or translation of the gene encoding CYP2A6.

7. A pharmaceutical composition for use in treating a condition requiring regulation of ~~nicotine~~ metabolism to cotinine comprising an effective amount of a substance which selectively inhibits CYP2A6, and a pharmaceutically acceptable carrier, diluent, or excipient.
8. The composition defined in claim 7, wherein the substance comprises at least one compound having a lactone structure with a carbonyl moiety.
9. The composition defined in claim 7, wherein the substance is at least one member selected from the group consisting of coumarin, furanocoumarin, methoxsalen, imperatorin, psoralen, α -naphthoflavone, isopimpinellin, β -naphthoflavone, bergapten, sphondin, coumatetralyl (racumin), (+)-cis-3,5-dimethyl-2-(3-pyridyl)-thiazolidim-4-one, naringenin and related flavones, diethyldithiocarbamate, N-nitrosodialkylamine, nitropyrene, menadione, imidazole antimycotics, miconazole, clotrimazole, pilocarpine, hexamethylphosphoramide, 4-methylnitrosamine-3-pyridyl-1-butanol, aflatoxin B, analogs thereof and derivatives thereof.
10. The composition defined in claim 9, wherein the N-nitrosodialkylamine is selected from the group consisting of N-nitrosodiethylamine, N-nitrosodimethylamine and mixtures thereof.
11. A method for treating a condition requiring regulation of nicotine metabolism to cotinine in an individual comprising administering to the subject an effective amount of a substance which selectively inhibits CYP2A6.
12. The method defined in claim 11, wherein the substance is at least one compound having a lactone structure with a carbonyl moiety.

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13. The method defined in claim 11, wherein the substance is at least one member selected from the group consisting of coumarin, furanocoumarin, methoxsalen, imperatorin, psoralen, α -naphthoflavone, isopimpinellin, β -naphthoflavone, bergapten, sphondin, coumatetralyl (racumin), (+)-cis-3,5-dimethyl-2-(3-pyridyl)-thiazolidim 4-one, naringenin and related flavones, diethyldithiocarbamate, N-nitrosodialkylamine, nitroxyrene, menadione, imidazole antimycotics, miconazole, clotrimazole, pilocarpine, hexamethylphosphoramide, 4-methylnitrosamine-3-pyridyl-1-butanol, aflatoxin B, analogs thereof and derivatives thereof.

14. The method defined in claim 13, wherein the N-nitrosodialkylamine is selected from the group consisting of N-nitrosodiethylamine, N-nitrosodimethylamine and mixtures thereof.

15. The method defined in any one of claims 12, comprising administration to the individual of a mixture comprising two or more of said substances.

16. The method defined in any one of claims 11-15, wherein the condition is dependent or non-dependent tobacco use.

17. A method for enhancing inhibition of nicotine metabolism by a CYP2A6 inhibitor in an individual comprising administering to the individual an effective amount of a substance which selectively inhibits CYP2A6, and an effective amount of an inhibitor of CYP2B6.

18. The method defined in claim 17, wherein the substance is at least one compound having a lactone structure with a carbonyl moiety.

19. The method defined in claim 17, wherein the substance is at least one member selected from the group consisting of coumarin, furanocoumarin, methoxsalen, imperatorin, psoralen, α -naphthoflavone, isopimpinellin, β -naphthoflavone, bergapten, sphondin, coumatetralyl (racumin), (+)-cis-3,5-dimethyl-2-(3-pyridyl)-thiazolidim

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-4-one, naringenin and related flavones, diethyldithiocarbamate, N-nitrosodialkylamine, nitropyrene, menadione, imidazole antimycotics, miconazole, clotrimazole, pilocarpine, hexamethylphosphoramide, 4-methylnitrosamine-3-pyridyl-1-butanol, aflatoxin B, analogs thereof and derivatives thereof.

20. The method defined in claim 19, wherein the N-nitrosodialkylamine is selected from the group consisting of N-nitrosodiethylamine, N-nitrosodimethylamine and mixtures thereof.

21. A pharmaceutical composition for use in treating a condition requiring regulation of nicotine metabolism to cotinine comprising an effective amount of a substance which selectively inhibits CYP2A6, an effective amount of an inhibitor of CYP2B6, and/or a pharmaceutically acceptable carrier, diluent, or excipient.

22. The composition defined in claim 21, wherein the substance comprises at least one substance having a lactone structure with a carbonyl moiety.

23. The composition defined in claim 21, wherein the substance comprises at least one member selected from the group consisting of coumarin, furanocoumarin, methoxsalen, imperatorin, psoralen, α -naphthoflavone, isopimpinellin, β -naphthoflavone, bergapten, sphondin, coumatetralyl (racumin), (+)-cis-3,5-dimethyl-2-(3-pyridyl)-thiazolidim -4-one, naringenin and related flavones, diethyldithiocarbamate, N-nitrosodialkylamine, nitropyrene, menadione, imidazole antimycotics, miconazole, clotrimazole, pilocarpine, hexamethylphosphoramide, 4-methylnitrosamine-3-pyridyl-1-butanol, aflatoxin B, analogs thereof and derivatives thereof.

24. The composition defined in claim 23, wherein the N-nitrosodialkylamine is selected from the group consisting of N-nitrosodiethylamine, N-nitrosodimethylamine and mixtures thereof.

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25. A method for treating a condition requiring regulation of nicotine metabolism to cotinine in an individual comprising administering to the individual an effective amount of a substance which selectively inhibits CYP2A6, and an effective amount of an inhibitor of CYP2B6.

26. The method defined in claim 25, wherein the substance is at least one compound having a lactone structure with a carbonyl moiety.

27. The method defined in claim 25, wherein the substance is at least one member selected from the group consisting of coumarin, furanocoumarin, methoxsalen, imperatorin, psoralen, α -naphthoflavone, isopimpinellin, β -naphthoflavone, bergapten, sphondin, coumatetralyl (racumin), (+)-cis-3,5-dimethyl-2-(3-pyridyl)-thiazolidim-4-one, naringenin and related flavones, diethyldithiocarbamate, N-nitrosodialkylamine, nitropyrene, menadione, imidazole antimycotics, miconazole, clotrimazole, pilocarpine, hexamethylphosphoramide, 4-methylnitrosamine-3-pyridyl-1-butanol, aflatoxin B, analogs thereof and derivatives thereof.

28. The method defined in claim 27, wherein the N-nitrosodialkylamine is selected from the group consisting of N-nitrosodiethylamine, N-nitrosodimethylamine and mixtures thereof.

29. The method defined in any one of claims 26-28, comprising administration to the individual of a mixture comprising two or more of said substance.

30. The method defined in any one of claims 25-29, wherein the condition is dependent or non-dependent tobacco use.

31. A method for determining the CYP2A6 activity in an individual containing two mutant alleles, one mutant allele or no mutant alleles at a gene locus for the CYP2A6 gene, the method comprising the steps of:

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(a) assaying a DNA-containing bodily sample from the individual to determine whether the individual contains two mutant alleles, one mutant allele or no mutant alleles at the CYP2A6 gene locus;

(b) determining the amount of CYP2A6 present in the individual; and

(c) correlating the results of assaying in step (a) and the amount of CYP2A6 in step (b) to determine an appropriate dosage for that individual of a substance which (i) selectively inhibits CYP2A6 activity, or (ii) selectively inhibits transcription and/or translation of the gene encoding CYP2A6.

32. The method defined in claim 31, wherein the DNA-containing bodily sample is a blood sample.

33. The method defined in claim 31, wherein the DNA-containing bodily sample is a tissue sample.

34. Use of a substance which selectively inhibits CYP2A6 for the preparation of a medicament for regulation of nicotine metabolism to cotinine in an individual.

35. The use defined in claim 34, wherein the substance is at least one compound having a lactone structure with a carbonyl moiety.

36. The use defined in claim 34, wherein the substance is at least one member selected from the group consisting of coumarin, furanocoumarin, methoxsalen, imperatorin, psoralen, α -naphthoflavone, isopimpinellin, β -naphthoflavone, bergapten, sphondin, coumatetralyl (racumin), (+)-cis-3,5-dimethyl-2-(3-pyridyl)-thiazolidim-4-one, naringenin and related flavones, diethyldithiocarbamate, N-nitrosodialkylamine, nitropyrene, menadione, imidazole antimycotics, miconazole, clotrimazole, pilocarpine, hexamethylphosphoramide, 4-methylnitrosamine-3-pyridyl-1-butanol, aflatoxin B, analogs thereof and derivatives thereof.

37. The method defined in claim 36, wherein the N-nitrosodialkylamine is selected from the group consisting of N-nitrosodiethylamine, N-nitrosodimethylamine and mixtures thereof.

38. A method for treating a condition requiring regulation of nicotine metabolism to cotinine in an individual comprising administering to the subject: (a) an effective amount of a first substance which selectively inhibits CYP2A6; and (b) an effective amount of a second substance which is capable of regulating inhibition of the first substance.

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